

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES**

In re the Application of:

Conf. No. 2397

Koji YAMADA et al.

Art Unit: 1793

Application No.: 10/521,818

Examiner: Yang, J.

Filed: January 21, 2005

Attorney Dkt. No.: 12065-0020

For: METHOD AND APPARATUS FOR RECOVERING PLATINUM GROUP ELEMENTS

CORRECTED APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This corrected appeal is filed in response to the Non-Compliant Response dated May 5, 2010. The Non-Compliant Response is requesting a corrected Summary of the Claimed Subject Matter section since independent claims 1 and 4 are not mapped by page, line number and drawing. The corrected section is submitted herewith.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

The invention relates to a method for recovering platinum group elements. Independent claim 1 defines a method that involves the steps of charging into a closed electric furnace and melting, together with flux components and a reducing agent, a platinum group element-containing substance including spent petrochemical type catalyst or spent vehicle exhaust gas purification catalyst to be processed and a copper source material containing copper oxide, see page 6, line 22 to page 7, line 15 and Figure 1 of the specification.

When the charged material melts down, molten metal of primarily metallic copper sinks below a molten slag layer of primarily oxides; and the platinum group elements are enriched in the molten metal sunk below, see paragraphs, see page 7, line 24 to page 8, line 4, and page 11, line 23 to page 13, line 6.

The copper source material charged into the electric furnace is composed of granules of an average grain diameter of not less than 0.1 mm and not greater than 10 mm, see page 10, lines 2-12. The control of the average grain diameter of the granules is important for the "copper showering effect" described on page 12, line 9 to page 13, line 6. This effect is able to be achieved by the control of the size of the copper source material. As explained in page 12, line 9 to page 13, line 6, if the size of the copper source material is too small, i.e., less than 0.1 mm, it takes a long time to sink through the slag and the taking up of the platinum group metals by the molten metal copper is reduced. If the copper source material is too big, i.e., greater than 10 mm, the molten copper sinks too quickly and the taking up of the platinum group metals is reduced.

Another critical aspect of the invention is the ascertaining of the copper content of molten slag in the furnace for purposes of deciding when to discharge the slag from the furnace. The ascertaining is done by sampling and analyzing, see page 9, lines 13-16. The discharge of the molten slag from the electric furnace occurs when a copper content of the molten slag determined by the ascertaining step is 3.0 wt.% or less.

The control of the discharge based on the copper content of the molten slag results in enhanced recovery of the platinum group metals. What Appellant has discovered is that the amount of platinum group elements remaining in the slag is closely related to the amount of copper remaining in the slag. This is explained in page 9, lines 7-12, and illustrated in Figure 2. When the copper content in the slag is 1 wt.% for example, the Pt, Pd, and Rh contents in the slag are very low, and with a further decline in the copper content in the slag, the platinum group elements are even lower. When the Cu content of the slag exceeds 3.0 wt.%, the contents of platinum group metals such as Pt, Pd, and Rh in the slag increase sharply and the recovery rate of the platinum group metals decreases rapidly.

Claim 3 further limits the method of claim 1 by specifying that the interior of the electric furnace is maintained at a pressure lower than atmospheric pressure from the melting of the charge material to the discharging of the molten slag, see page 7, lines 16-23. Figure 1 shows an exhaust port 5 and an exhaust unit 9, which cooperate to maintain the lower than atmospheric pressure from the melting to discharging steps.

Independent claim 4 shares the steps of charging into a closed electric furnace and melting, together with flux components and a reducing agent, a platinum group

element-containing substance to be processed and a copper source material containing copper oxide, sinking molten metal of primarily metallic copper below a molten slag layer of primarily oxides, and enriching the platinum group elements in the molten metal sunk below to form a molten metal enriched in the platinum group elements with claim 1.

Thus, the description of these limitations and their support in the specification is the same as set above.

Independent claim 4 also shares the control of the size of the granules and the manner in how the slag is discharged based on copper content of the slag with claim 1.

Independent claim 4 differs from claim 1 by including the step of separating the molten metal enriched in the platinum group elements from the molten slag and transferring the molten metal to a separate furnace while still in the molten state, see page 13, line 23 to page 14, line 1.

The transferred molten metal is oxidized in the separate furnace to separate it into a slag layer of primarily oxides and a molten metal layer further enriched in the platinum group elements, see page 14, lines 2-12.

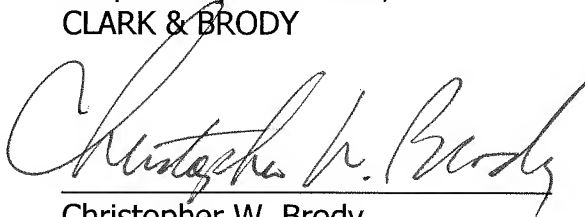
The molten slag generated in the separate furnace is water-cooled from a high-temperature state to obtain the copper source material containing the aforesaid copper oxide composed of granules having a grain diameter of not less than 0.1 mm and not greater than 10 mm, see page 14, line 19 to page 15, line 5.

REMARKS

Appellant submits that this corrected Appeal Brief is being timely filed and meets the requirements set forth in the aforementioned Notice and 35 U.S.C. § 134 and in 37 C.F.R. § 41.37.

Please charge any fee deficiency and credit any excess to Deposit Account 50-1088.

Respectfully submitted,
CLARK & BRODY

A handwritten signature in cursive script, appearing to read "Christopher W. Brody", written over a horizontal line.

Christopher W. Brody
Registration No. 33,613

Customer No. 22902

1700 Diagonal Road, Suite 510
Alexandria, VA 22314
Telephone: 202-835-1111
Facsimile: 703-504-9415

Date: May 20, 2010